

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A graft retaining system for retaining a graft in a bone tunnel in a bone, the system comprising:

encircling means for at least partially encircling a portion of the graft, the encircling means being positionable adjacent the bone tunnel, the encircling means being movable from a first position in which the graft passes generally straight through the encircling means to a second position within the bone tunnel in which the graft is forced into a tortuous path through the encircling means such that the graft is gripped by the encircling means; and

securing means for securing the graft and encircling means relative to the bone tunnel with the encircling means in the second position, the securing means being releasably engageable with the encircling means, the encircling means being responsive to insertion of the securing means into the bone tunnel to move from the first position to the second position.

2. (cancelled)

3. (original) The graft retaining system of claim 1 wherein the securing means directly engages the graft, the encircling means, and the bone tunnel to secure the graft and the encircling means.

4. (original) The graft retaining system of claim 1 wherein the encircling means comprises a ring having an axis, the ring encircling the graft to grip the graft in belt buckle fashion when the ring is placed in the second position.

5. (original) The graft retaining system of claim 4 wherein the ring comprises a bone engaging portion extending from one side of the ring, the bone engaging portion being engageable with the bone outside of the bone tunnel to form a center of rotation about which the ring can rotate, the ring being rotatable about the bone engaging portion from the first position in which the ring axis is generally aligned with the tunnel to the second position in which it is generally transverse to the bone tunnel.

6. (cancelled)

7. (original) The graft retaining system of claim 1 wherein the encircling means directly engages the graft and the bone outside of the tunnel and the securing means directly engages the graft and the bone tunnel.

8. (original) The graft retaining system of claim 1 wherein the securing means comprises an interference screw.

9. (currently amended) A graft retaining system for retaining a graft in a bone tunnel, the system comprising:

a first member for gripping the graft, the first member including a portion for at least partially encircling the graft to grip the graft in belt buckle fashion when the first member is rotated relative to the graft; and

a second member for securing the first member and the graft in the tunnel, the second member being engageable with the first member, the first member being responsive to insertion of the second member into the bone tunnel to rotate the first member relative to the graft.

10. (original) The graft retaining system of claim 9 wherein the encircling portion comprises a cylindrical ring defining a lumen having a lumen axis.
11. (original) The graft retaining system of claim 10 further comprising a bone engaging protrusion extending radially outwardly from the ring to engage the bone outside of the bone tunnel.
12. (original) The graft retaining system of claim 11 wherein the protrusion comprises a sharpened prong.
13. (original) The graft retaining system of claim 12 wherein the prong includes a tip that contacts the bone initially to create a center of rotation and a broad surface that contacts the bone after the first member is rotated.
14. (original) The graft retaining system of claim 11 further comprising a fixation portion extending radially outwardly from the ring to engage the second member.
15. (currently amended) The graft retaining system of claim 14 wherein the bone engaging protrusion is diametrically opposite the fixation portion and the bone engaging portion extends radially and axially outwardly and the fixation portion extends radially and axially outwardly in a direction opposite the bone engaging portion such that the first member is generally longitudinally "S"-shaped.
16. (original) The graft retaining system of claim 9 wherein the second member comprises an interference screw able to be driven adjacent the first member to engage the first member such that as the screw is advanced it causes the first member to rotate to grip the graft.
17. (cancelled)

18. (currently amended) The graft retaining system of claim 13 ~~17~~ wherein the first member includes at least one ~~outwardly projecting~~ lug extending transversely from the prong and the graft retaining system includes an insertion tool engageable with the lug ~~means includes at least one slot for receiving the at least one lug in pivoting relationship.~~

19. (original) The graft retaining system of claim 9 wherein the first member comprises a cylindrical ring having a side wall surrounding a central lumen having a lumen axis, the side wall being curved to more closely conform to the bone tunnel wall when the first member is rotated to grip the graft.

20. (original) The graft retaining system of claim 19 wherein a portion of the side wall is axially offset relative to the remainder of the side wall to define an axial curve.

21. (original) The graft retaining system of claim 9 wherein the first member comprises a cylindrical ring having a side wall surrounding a central lumen having a lumen axis, the sidewall lying in a plane transverse to the lumen axis.

22. (original) A graft retaining system for retaining a graft in a bone tunnel formed in a bone, the system comprising:

a ring including a cylindrical side wall, the cylindrical wall having an inner surface

defining a lumen sized for receiving the graft and an outer surface sized to fit

within the bone tunnel, the lumen having a lumen axis;

a bone engaging prong extending radially outwardly from the ring;

a fixation tab extending radially outwardly from the ring, opposite the prong, for engaging

an interference screw; and an interference screw engageable with the fixation tab

to secure the ring and graft relative to the tunnel.

23. (original) The graft retaining system of claim 22 wherein the ring is positionable adjacent the bone tunnel, the ring being movable from a first position in which the graft passes generally straight through the ring to a second position in which the graft is forced into a tortuous path through the ring such that the graft is gripped by the ring.

24. (original) The graft retaining system of claim 22 wherein the fixation tab includes a through-slot and a depression adjacent the slot, the depression being engageable with the interference screw.

25. (original) The graft retaining system of claim 22 wherein the side wall lies in a plane transverse to the lumen axis.

26. (original) The graft retaining system of claim 22 wherein a portion of the side wall is axially curved.

27. (currently amended) A method for retaining a graft in a bone tunnel formed in a bone, the method comprising:

~~providing encircling means for at least partially encircling a portion of the graft;~~

positioning an the encircling means adjacent the bone tunnel in a first position such that it

at least partially encircles a portion of the graft with the graft passing generally

straight through the encircling means; and

inserting a securing means adjacent the graft and encircling means to move moving the

encircling means from the first position to a second position, within the bone

tunnel, in which the graft is forced into a tortuous path through the encircling

means such that the graft is gripped by the encircling means and the securing

means secures the graft and encircling means relative to the bone tunnel with the encircling means in the second position.

28. (cancelled)

29. (currently amended) The method of claim 27 wherein the encircling means comprises a lumen for receiving the graft, a prong for gripping the bone outside of the tunnel to create a center of rotation, and a fixation tab for engaging an interference screw, the step of positioning the encircling means adjacent the bone tunnel comprising placing the prong into engagement with the bone outside of the bone tunnel and placing the graft through the lumen, the method further comprising:

~~providing an interference screw for securing the graft and encircling means;~~

positioning an the interference screw adjacent the fixation tab; and

driving the interference screw into the bone tunnel to rotate the encircling means about

the center of rotation created by the prong such that the encircling means grips the graft and the interference screw grips the encircling means to secure the graft and encircling means relative to the bone tunnel with the encircling means in the second position.

30. (original) The method of claim 29 further comprising:

forming a notch in a portion of the bone tunnel to receive the fixation tab.

31. (currently amended) The method of claim 30 further comprising:

~~providing a guidewire;~~

inserting a the guidewire into the tunnel adjacent the notch; and

inserting the interference screw over the guide wire to guide the interference screw.

20 is not “movable to a second position within the bone tunnel in which the graft is forced into a tortuous path . . . [and] is gripped by the encircling means”. If Sklar’s flange moved to a position within the bone tunnel its function would be destroyed. Therefore, claim 1 does not read on Sklar and is allowable over Sklar.

Further regarding claim 1, Sklar fails to disclose “securing means for securing the graft and encircling means relative to the bone tunnel with the encircling means in the second position, the securing means being releasably engageable with the encircling means, the encircling means being responsive to insertion of the securing means into the bone tunnel to move from the first position to the second position”. Examiner has alternatively characterized Sklar’s flange 20, portions 23, and screw 24 as securing means. However, none of the suggested securing means are releasably engageable with the flange 20 and the flange 20 is not responsive to insertion of any of them into the bone tunnel to move from the first position to the second position. Note that the screw 24 engages neither the flange 20 nor the bone tunnel for that matter. Sklar’s screw 24 is inserted into the body 12 for impinging on the deformable walls 22 to press the walls 22 outwardly and pinch the ligament between the deformable walls 22 and the inner wall 21 of the body 12 (paragraph 43). Thus, claim 1 further does not read on Sklar and is allowable over Sklar.

Claims 2 and 6 have been cancelled and incorporated into claim 1.

Claims 3-7 depend from claim 1 and are allowable for the same reasons as claim 1.

Claim 3 is further allowable over Sklar because Sklar fails to disclose “the securing means directly engages the graft, the encircling means, and the bone tunnel to secure the graft and the encircling means”.

Claim 5 is further allowable over Sklar because Sklar fails to disclose “a bone engaging portion extending from one side of the ring, the bone engaging portion being engageable with the bone outside of the bone tunnel to form a center of rotation about which the ring can rotate, the ring being rotatable about the bone engaging portion from the first position in which the ring axis is generally aligned with the tunnel to the second position in which it is generally transverse to the bone tunnel”.

Claim 7 is further allowable over Sklar because Sklar fails to disclose “wherein the encircling means directly engages the graft and the bone outside of the tunnel and the securing means directly engages the graft and the bone tunnel”. Sklar has no securing means that directly engages the graft and bone tunnel. As noted above, the screw 24 engages neither the graft nor the bone tunnel.

Regarding claim 9, Sklar fails to disclose “a second member for securing the first member and the graft in the tunnel, the second member being engageable with the first member, the first member being responsive to insertion of the second member into the bone tunnel to rotate the first member relative to the graft”. Claim 9 does not read on Sklar and is therefore allowable over Sklar for the same reasons as claim 1.

Claims 10-14 and 19-21 depend from claim 9 and are therefore allowable for the same reasons as claim 9.

Claim 11 is further allowable over Sklar because Sklar fails to disclose “a bone engaging protrusion extending radially outwardly from the ring to engage the bone outside of the bone tunnel”.

Claim 12 is further allowable over Sklar because Sklar fails to disclose “the protrusion comprises a sharpened prong”.

Claim 13 is further allowable over Sklar because Sklar fails to disclose “the prong includes a tip that contacts the bone initially to create a center of rotation and a broad surface that contacts the bone after the first member is rotated”.

Claim 14 is further allowable over Sklar because Sklar fails to disclose “a fixation portion extending radially outwardly from the ring to engage the second member”.

Claim 19 is further allowable over Sklar because Sklar fails to disclose “the first member comprises a cylindrical ring having a side wall surrounding a central lumen having a lumen axis, the side wall being curved to more closely conform to the bone tunnel wall when the first member is rotated to grip the graft”. Note that Sklar’s flange 20 is flat so that it lies flat against the tibial surface outside of the bone tunnel.

Claim 20 is further allowable over Sklar because Sklar fails to disclose “a portion of the side wall is axially offset relative to the remainder of the side wall to define an axial curve”. Again, Sklar’s flange 20 is flat.

Regarding claim 27, Sklar fails to disclose “inserting a securing means adjacent the graft and encircling means to move the encircling means from the first position to a second position, within the bone tunnel, in which the graft is forced into a tortuous path through the encircling means such that the graft is gripped by the encircling means and the securing means secures the graft and encircling means relative to the bone tunnel with the encircling means in the second position”. Claim 27 does not read on Sklar and is therefore allowable over Sklar for the same reasons as claim 1.

Claim 28 has been cancelled and incorporated into claim 27.

Claims 8, 16-18, 22-25 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar in view of Strobel et al. (US 2001/0007074).

Claim 8 depends from amended claim 1 and is allowable for the same reasons as claim 1.

Claims 16-18 depend from amended claim 9 and are therefore allowable for the same reasons as claim 9.

Claim 17 has been cancelled.

Claim 18 is further allowable over the combination because the combination fails to disclose “the first member includes at least one lug extending transversely from the prong and the graft retaining system includes an insertion tool engageable with the lug in pivoting relationship”. Strobel’s insertion tool engages the screw, or second member as Examiner has interpreted the references. Furthermore, Strobel’s insertion tool does not engage in pivoting relationship but rather in fixed torque transmitting relationship in order to drive the screw.

Regarding claim 22, the combination fails to disclose “a bone engaging prong extending radially outwardly from the ring; a fixation tab extending radially outwardly from the ring, opposite the prong, for engaging an interference screw”. Therefore, claim 22 does not read on the combination and is allowable over the combination.

Claims 23-25 depend from claim 22 and are allowable for the same reasons as claim 22.

Claim 24 is further allowable over the combination because the combination fails to disclose “the fixation tab includes a through-slot and a depression adjacent the slot, the depression being engageable with the interference screw”.

Claims 29-30 depend from claim 27 and are allowable for the same reasons as claim 27.

Claim 29 is further allowable over the combination because the combination fails to disclose “the encircling means comprises a lumen for receiving the graft, a prong for gripping the bone outside of the tunnel to create a center of rotation, and a fixation tab for engaging an interference screw, the step of positioning the encircling means adjacent the bone tunnel comprising placing the prong into engagement with the bone outside of the bone tunnel and placing the graft through the lumen”. The combination further fails to disclose “driving the interference screw into the bone tunnel to rotate the encircling means about the center of rotation created by the prong such that the encircling means grips the graft and the interference screw grips the encircling means to secure the graft and encircling means relative to the bone tunnel with the encircling means in the second position”.

Claim 30 is further allowable over the combination because the combination fails to disclose “forming a notch in a portion of the bone tunnel to receive the fixation tab.”

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar in view of Li et al. (US 6,117,161).

Claim 15 depends from claim 9 and is allowable for the same reasons as claim 9. Claim 15 is further allowable over the combination because the combination fails to disclose “bone engaging protrusion is diametrically opposite the fixation portion and the bone engaging portion extends radially and axially outwardly and the fixation portion extends radially and axially outwardly in a direction opposite the bone engaging portion such that the first member is generally longitudinally "S"-shaped”. For example, Li’s portion does not extend radially and axially outwardly and it is not longitudinally “S”-shaped but instead is flat to rotate into the bone undercut.